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# New Study Is Pessimistic On Nation's Oil Potential

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A two-year study for the Federal Government has concluded that the prospects of finding more oil and gas in the United States are severely limited. Future discoveries will be considerably smaller than most analysts have predicted, the study says, and output will fall faster than expected.

These conclusions by the Rand Corporation, a research group based in Santa Monica, Calif., contrast sharply with assertions by Ronald Reagan in the Presidential campaign and with previous Government and industry studies.

For example, the report says that as of the end of 1979, 121 billion barrels of oil had been discovered in the United States, and it said there was a 50 percent probability that 20 billion more barrels would be produced as a result of new discoveries. In contrast, six other reports cited by the Rand researchers contain estimates on new oil discoveries ranging from 55 billion to 161 billion barrels.

## Expansion of Existing Reservoirs

In addition, most analyses have referred optimistically to drawing more oil from existing reservoirs. But the Rand study theorizes that there is a 50 percent probability that existing reserves can be expanded by 36 billion barrels of oil.

In his debate with President Carter last Oct. 29, Mr. Reagan said, "There is more oil now in the wells that have been drilled than has been taken out in the 120 years that they have been drilled."

Although not explicitly addressing assertions such as that, the Rand study says it "is likely that more than half of the conventional petroleum reserves that will ultimately be produced have been produced."

"The historical data do not suggest a promising future for United States petroleum exploration," said the 700-page report, which was released today.

The report, prepared for the United States Geological Survey and the Department of Energy, notes that oil discoveries have declined steadily since the 1930's and that natural gas discoveries have fallen since the 1950's.

## Running Out of Ideas

The reason is geology, not economics. The report notes that most oil is found in large pools, and it contends that the nation is simply running out of unexplored places where there is any possibility of finding large amounts of oil. Moreover, the report says, this situation is not likely to be reversed no matter how much the oil

companies spend on drilling.

"The petroleum industry is gradually running out of ideas as to where oil and gas may still be found in the United States," the study says, "not because of lack of creativity and imagination, but because of the increasing exhaustion of geological possibilities."

The Rand analysis is based on a combination of geological and statistical analysis. Richard Nehring, the principal author of the study, said in an interview that Rand's methodology differed from that used in many past efforts in that it looked closely at individual fields rather than statistical abstractions such as the number of barrels discovered for each foot drilled.

On the subject of natural gas potential, the Rand study estimates there is a 50 percent chance of finding 170 trillion cubic feet of natural gas beyond the 570 trillion cubic feet already discovered. Estimates on new discoveries in the six other studies cited in the report range from 287 trillion to 1,178 trillion cubic feet.

## A 20-to-40-Year Supply?

The Rand study further postulates that the United States can continue producing domestic supplies of oil for 20 to 40 years and natural gas for 17 to 26 years at 1979 rates of production. Those predictions are based on exploration and production costs of \$40 a barrel, implying prices of about \$60 a barrel.

By contrast, Mr. Nehring said, "We've found a lot of oil and gas in this country, but we've already produced most of it, and nearly all of it at costs of less than \$10 a barrel."

Mr. Nehring, who also was the author of an influential study of world oil reserves for the Central Intelligence Agency two years ago, acknowledged that the results of the latest study were "clearly inconsistent with the assumptions" of the Reagan Administration's energy planners.

The Administration's assumptions more nearly parallel estimates in a recent study by the Heritage Foundation that the United States has enough oil to last 46 to 74 years.

Nonetheless, Mr. Nehring suggested that his report could be used to reinforce President Reagan's position that more Federal onshore and offshore land should be opened to exploration. "The best potential for major discoveries is on Federal land," he said.